CITY OF MARION
INFRASTRUCTURE AND STRATEGY COMMITTEE MEETING
6 March 2018

CONFIDENTIAL REPORT

Originating Officer:	**Brett Grimm, Project Manager Strategic Projects**
Manager:	**Greg Salmon, Manager City Activation**
General Manager:	**Abby Dickson, General Manager City Development**
Subject:	**BMX Project – Progress Report**
Report Reference:	**ISC060318F01**

If the Committee so determines, this matter may be considered in confidence under Section 90(2) and 3(d) of the *Local Government Act 1999* on the grounds that the report contains commercial information of a confidential nature.

Adrian Skull

Chief Executive Officer

RECOMMENDATION

That pursuant to Section 90(2) and (3)(d) of the *Local Government Act 1999,* the Committee orders that all persons present, with the exception of the following persons: Adrian Skull, Chief Executive Officer; Vincent Mifsud, General Manager Corporate Governance; Abby Dickson, General Manager City Development; Tony Lines, General Manager City Services; Kate McKenzie, Manager Corporate Governance; Greg Salmon, Manager City Activation; Brett Grimm, Project Manager Strategic Projects and Elaine Delgado, Strategy Leader be excluded from the meeting as the Committee receives and considers information relating to the BMX Project, upon the basis that the Committee is satisfied that the requirement for the meeting to be conducted in a place open to the public has been outweighed by the need to keep consideration of the matter confidential given the information relates to commercial information of a confidential nature, and would on balance, be contrary to the public interest commercial information.

REPORT OBJECTIVES

The purpose of this report is to provide the Infrastructure and Strategy Committee with a detailed update on the BMX Project. Staff will provide an overview of the project at the Committee, describe the steps being taken and will be available to answer any questions.

RECOMMENDATIONS	DUE DATES
That the Infrastructure and Strategy Committee:	
1. Notes the report and next steps.	**6 March 2018**
2. In accordance with Section 91(7) and (9) of the Local Government Act 1999 the Committee orders that this report, BMX Project, associated appendices and the minutes arising from this report having been considered in confidence under Section 90(2) and 3 (d) of the Act, except when required to effect or comply with the Committee's resolution(s) regarding this matter, be kept confidential and not available for public inspection for a period of 12 months from the date of this meeting. This confidentiality order will be reviewed at the General Council Meeting in December 2018.	**December 2018**

BACKGROUND

Council resolved at the General Council Meeting held 23 August 2016 (Report GC230816R03) to enter into a Funding Deed between the Minister for Recreation and Sport and the City of Marion for the BMX facility to be located in the portion of the O'Halloran Hill Recreation Park. The site lies north of Majors Road and bounded on the east and west by the Southern Expressway and high voltage overhead power lines respectively. The O'Halloran Hill Recreation Park is managed by the Department of Environment Water and Natural Resources (DEWNR).

The BMX track is to be to UCI standard to attract and host national and international events; to form a regional track; to develop the sport in South Australia; to become the training facility for elite riders; to be the new home for The Cove BMX Club (currently located within City of Marion) and for Happy Valley BMX Club (currently located within City of Onkaparinga).

The facility has been named the Sam Willoughby International BMX Track by the Minister for Recreation and Sport.

The original project budget was $3.5million; comprising $2,000,000 from the Minister for Recreation and Sport, $750,000 from City of Onkaparinga and $750,000 from City of Marion. Recent discussions with Office for Recreation and Sport (ORS) has indicated an additional $1.3 million will be provided to the project bringing the total budget to $4.8 million.

The State funding is to be used for the construction of the BMX UCI standard track in the first instance, with any unspent funds contributing towards the other infrastructure required for the facility.

The Funding Deed ($2 million) states that if the costs of the project exceed the $3.5 million budget, City of Marion, City of Onkaparinga, Office for Recreation and Sport (ORS) and DEWNR are to use best endeavours to secure and develop a mutually agreeable funding solution necessary for the completion of the facility.

The City of Marion is responsible for the delivery of the project. A Project Steering Group (PSG) consisting of representatives from City of Marion, City of Onkaparinga, ORS and DEWNR was established to liaise and co-operate in the delivery of the project.

A Project Advisory Group (PAG) was established to provide stakeholder input, review designs and provide stakeholder recommendations. The PAG is chaired by Cr Janet Byram – City of Marion Elected Member representative and Ward Councillor, representatives from The Cove BMX Club, Happy Valley BMX Club, BMX South Australia and BMX Australia, as well as ORS, DEWNR, City of Onkaparinga and City of Marion.

A geotechnical investigation and site survey were carried out prior to calling and awarding the Design Consultancy contract. There are separate contracts with a Cost Consultant and a Specialist BMX Track Designer.

DISCUSSION

The Project Steering Group in consultation with the Project Advisory Group have investigated the facility design and layout, and developed a track design to UCI standard with the appropriate complexity and suitability for attracting BMX events.

The components of the UCI track include:

- Earthworks to mitigate the deleterious effects of the highly expansive clays
- 5m and 8m high starting ramp structures
- Starting gates to both ramps
- UCI track itself - comprising straights, turns, and jumps
- Electronic timing system
- Lighting
- Stormwater drainage
- Fencing to the UCI track and starting ramps

Closely associated infrastructure includes:

- Hut for race registration and timing equipment
- Toilets – for club and public use
- Car parking
- Staging area – where cyclists queue up during racing events
- Supply of electricity and water, disposal of waste water
- Access off Majors Road
- Incorporate storage area/shed under starting ramp

Desirable infrastructure includes:

- A building for above-mentioned toilets, race registration and timing equipment, first aid room, kitchen/canteen, multi-purpose rooms for club use and event management
- Storage sheds
- Pump track – public use and entry level into the sport
- Site amenities to create a public venue

It was recognized from the outset that temporary infrastructure will need to be brought to the site when large events are hosted, but that the site layout allows space for such infrastructure.

The current Concept Site Plan and a drawing of the UCI track are included as Appendices.

The site is underlain by highly reactive clays that undergo large volume changes with changes in moisture content. The clays extend from surface to bedrock, between 3.5 to 4.5 metres deep. There are significant costs associated with constructing the track on these highly reactive clay soils. The cost estimate for the Concept Design, after various value management exercises, is significantly over the project budget, which would be exacerbated should the excess clay soil that cannot be disposed of on site has to be removed for disposal elsewhere. Access to the site is off the DPTI owned Majors Road; preliminary talks have indicated that substantial works may be required – these are not included in the cost estimate.

In accordance with the Funding Deed, the funding partners have met on a number of occasions to consider the scope and additional funding sources. Initiatives to lower the costs have been explored. A summary of findings are tabled below.

Review of scope	All associated non-essential infrastructure that adds to the amenity but is not required for UCI track functionality has been deleted. A basic cost clubhouse and toilets have been allowed with gravel car park only.
Track alignments to reduce the volume of excavated material	The current maximum 2m gradient is the most cost effective solution due to the topographic fall across the site.
Identification of areas and sites to dispose of excess soils	DWENR has agreed to soil disposal on land adjacent to the proposed track.
Third party independent review of layout, design and costing.	The independent review concluded that the cost estimates are reflective of the scope with some cost savings suggested through soil disposal onsite (included in the current option) Potential to reduce scope to the clubhouse. The ground preparation methodology heavily impacts the cost estimates. Obviously, ride ability, functionality and maintenance need to be weighed up against up front capital costs.
Alternative sites	Several sites considered, two sites considered in more detail for site planning and high level costings.
Additional funding sources	Advice from ORS is that State Government grants would only be applicable to sport and recreation elements outside of the current scope of works.

Alternative Site Options (refer to appendices for cost estimates)

The following table illustrates the alternative sites investigated.

Site Options	
Site 1	Original site, OHH RP, north of Majors Rd (opposite MFS) between overhead power lines and Southern Expressway
Site 2	Co-Locate with soccer. OHH RP, south of Majors Rd (opposite Marion Depot), between Model Aero Club and Adams Rd
Site 3	Southern Sports Complex, Noarlunga Downs, south of Goldsmith Dr, between South Adelaide Football Club and Cardijn College.

City of Onkaparinga administration have recently acknowledged that Council resolved 20th February (Confidential Item) to not progress the Southern Sporting Complex as an option. City of Onkaparinga preferred site is currently Majors Rd, O'Halloran Hill.

The timeframes within the Funding Deed have been impacted and will need amendment once a fundable solution has been agreed.

Administration has developed a draft Prudential Management Report on the BMX Project for Council's consideration. The report was tabled at the 10 October 2017 Finance and Audit Committee meeting. The report refers to the following;

- Design and capital costs
- On-going management model, roles and responsibilities
- Whole of life costs
- Funding capacity
- Risk management
- Project management plan
- Community needs analysis
- Strategic Alignment
- Planning requirements
- Economic benefits

Financials
Section 9 of the prudential report provides reference to the financial viability and whole of life costs. The prudential report refers to an overall cost estimate of $7,695,000 capital and Operating/ Depreciation costs of $564,991 pa (depreciation $220,953 pa, O&M $344,038).

This has recently been varied to reflect value management to $6,244,000 capital, which would equate to $490,775 pa Operating/Depreciation costs (depreciation $191,035, O&M $299,740)

Council are in a position to negotiate with the clubs for track maintenance in the order of $69,000 per year.

Next Steps
Following discussions at a joint Council briefing 19th February, some additional options are currently being investigated:

- Design assessment and cost estimates for a roof structure to cover the track facility, potentially mitigating the cost of soil excavations. This will be assessed by civil and geotechnical engineers with relevance to soil and track stability.
- High-level design and cost estimate for a regional and club based facility (like for like of the clubs current facilities) to be located at Major Rd site.

In addition to these options, further discussions with DPTI will occur to identify requirements for the traffic management controls on Majors Rd and funding.

Investigations into funding strategies to account for the current gap will also be explored.

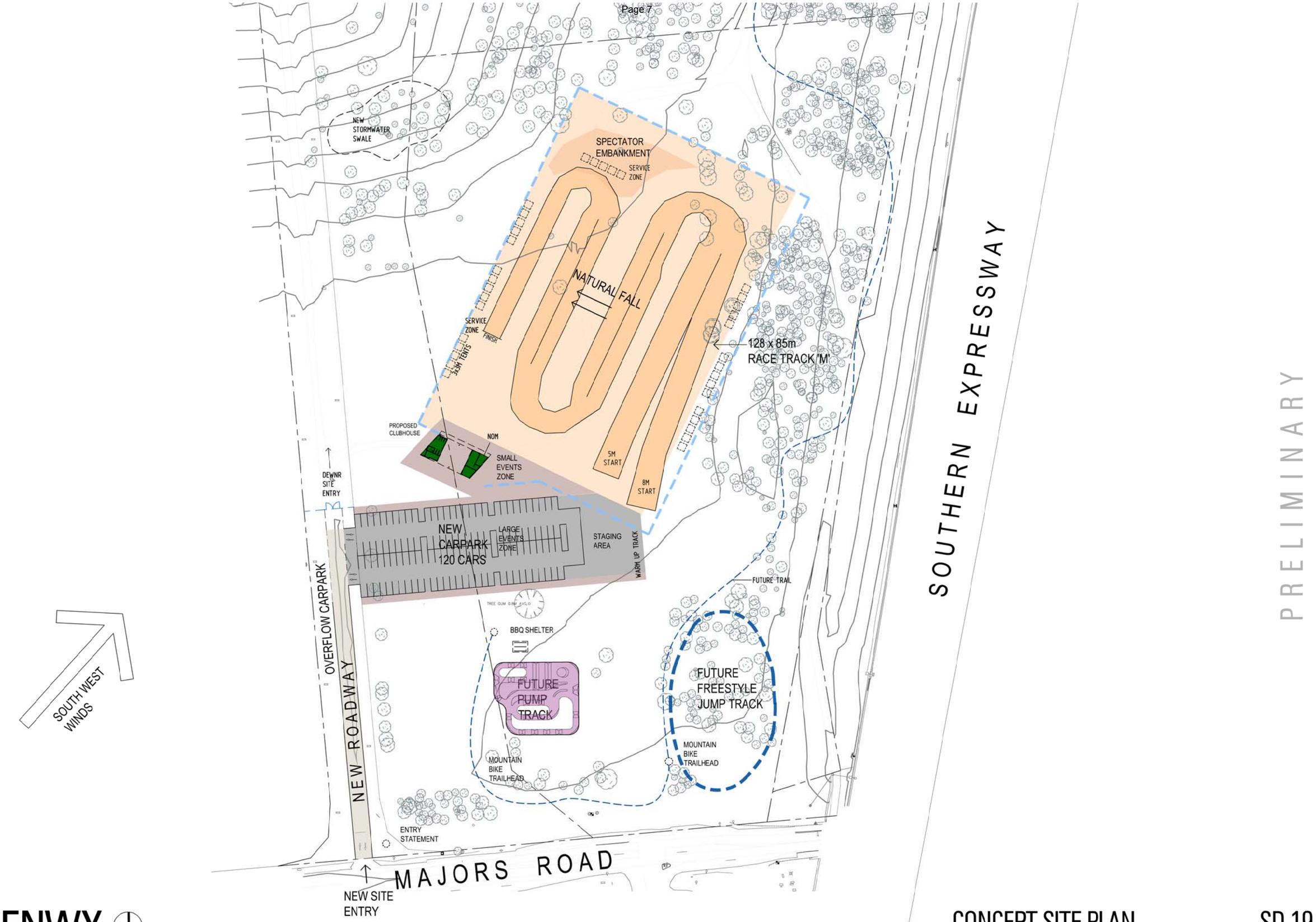
A council report will be developed for April/ May 2018 providing information as outlined above. An agreed location for the BMX facility in addition to expanding the commitment from funding partners or other sources will be required for this project to proceed at Majors Rd O'Halloran Hill.

CONCLUSION

In order to close the gap between the Concept Design stage cost estimate and the project budget, the City of Marion in conjunction with the funding partners and the landowner is investigating cost effective solutions. To further reduce the funding gap, City of Marion intends to review infrastructure components and the costing to assist in identifying efficiencies, staging opportunities and additional funding sources.

APPENDICES

Appendix 1 - Concept Site Plan SD.19
Appendix 2 – Alternative options cost estimates
Appendix 3 – Geotechnical Soil Investigation Questions and Answers



GREENWAY ARCHITECTS

PROJECT NO: G16095 SCALE 1:700 A1

0 5 10 25m

CONCEPT SITE PLAN
CITY OF MARION

MAJORS ROAD O'HALLORAN HILL SA

SD.19
SW BMX FACILITY

ISSUE DATE: 10.07.2017

Appendix 2 Alternative Site Options

Site 1: North side Majors Road, original site in OHH RP

Costs

$6,244,000

- clay removal to further mitigate risk
- excavated soils cannot be used for engineered fill
- includes disposal of excess soil within the site as agreed by DEWNR
- excludes DPTI required upgrade of Majors-Adams intersection, see below
- concept stage costs are +/- 10%.

Budget shortfall:
$1.4M (noting concept stage costs are subject to a +/- 10% variance)

Note budget does not reflect DPTI required traffic controls on Majors Rd estimated at $1.2M. Detail to be confirmed.

Access from adjacent road

- Access discussed with DPTI - to be from Majors-Adams intersection, required to be upgraded to have traffic signals; approximate cost $1.2million.
- Separate budget would have to be established and funding obtained.
- Majors Road is a DPTI road with traffic loading expected to increase due to other activities, not only due to BMX, and soccer. Existing traffic movements at the junction are already problematic at certain times.

Benefits

- Retains the Marion vision for a sporting precinct along Majors Road.
- Well suited to BMX – no nearby residents, ample space for temporary infrastructure for events.
- Good linkages to cycling paths and mountain biking.

Risks

- Funding gap significant.
- Mitigation of highly expansive clay adds significantly to cost exceeding budget.
- Residual risk due to clay movements on operating and maintenance costs.
- Onkaparinga funding linked to their BMX Club relocating, agreed in-principle.
- Construction affected by wet season, earliest September 2018.
- Majors Road upgrade works are unfunded.

Site 2: Co-locate with soccer on south side Majors Road, in OHH RP

Costs

$6,422,000

- excavated soils cannot be used for engineered fill
- assumes disposal of excess soil within the site
- excludes upgrade of Majors-Adams intersection, see below
- pre-concept stage costs are +/- 15%.

Budget shortfall:
$1.6M (noting pre-concept stage costs are subject to a +/- 15% variance)

Note budget does not reflect any traffic controls on Majors- Adams Rd. Details to be confirmed but considerably less then Option 1.

Access from adjacent road

- Access off Marion owned Adams Road; DPTI and Marion recommend localised widening of Majors and Adams Roads respectively at the intersection. Significantly lower cost than traffic signals.
- Separate budget would have to be established and funding obtained; soccer budget does not allow for such roadworks.

Benefits

- Site becomes a sporting centre.
- Opportunity for sharing costs for carpark, bringing services to site, access point off Adams Road with soccer. No traction for a shared clubhouse.
- Increased activation of the site.
- Greater economic benefit.
- Reduced roadworks at the Majors - Adams intersection as access is off Adams Road.

Risks

- Additional funds are not secured.
- Mitigation of highly expansive clay adds significantly to cost exceeding budget.
- Residual risk due to clay movements on operating and maintenance costs.
- BMX on lower portion of the site, increased slope increases earthworks costs
- Need soccer concept plan and a BMX concept plan to determine if there is sufficient space for temporary infrastructure for events.
- Proximity to residents – noise.
- Construction affected by wet season, earliest September 2018.
- Potentially two contractor on site – BMX and soccer, interface issues and delineation.
- Onkaparinga funding linked to their BMX Club relocating; need their agreement to re-locate to this site.
- Need Marion’s BMX Club agreement to re-locate to this site.
- Conflicting events between soccer and BMX.

Site 3: Southern Sporting Complex, City of Onkaparinga

Note; site not supported by City of Onkaparinga Council

Costs

$4,821,000

- based on geotechnical advice that excavated soil can be used for engineering fill
- includes disposal of excess soil within the site
- pre-concept stage costs are +/- 15%

Budget shortfall

Additional ORS funding of $1.3M has removed any shortfall.

Access from adjacent road

- Access using existing entrances off Onkaparinga owned Lovelock Drive.

Benefits

- Existing access points off local road.
- No adjacent DPTI roads.
- Adjacent regional shopping centre.
- Close to regional transport hub.
- Greater opportunity for regional economic benefit.
- Existing facilities are present and preliminary discussions held by CoO with adjacent South Adelaide Football Club (Australian Rules) were positive.
- Construction less affected by wet season, dependent on design and approvals.
- May initiate opportunities for further sporting facilities by ORS and CoO at this location.

Risks

- Additional funds are not secured.
- Costs still exceed budget.
- Onkaparinga funding linked to their BMX Club relocating; need their agreement to re-locate to this site.
- Need Marion's BMX Club agreement to re-locate to this site.
- Proximity to residents - noise
- Conflicting events between football and BMX.
- Councils do not reach an agreement to relocate project
- Clubs are unsupportive of relocating project site

BMX Majors Rd- Geotechnical Questions and Answers

Geotechnical Investigation Services Brief included investigations of all viable treatments for mitigating clay movements.

Geotechnical consultant responses

1. Clays at the site

- The soils at the BMX track site are among some of the worst in the Adelaide area. Geotechnical laboratory testing conducted nearby during the Southern Expressway duplication project indicated a shrink-swell index of up to 8% for the black clays adjacent to the site, which is much higher than the typical values of 3% or perhaps 4% that are typically appropriate for the Red Brown clays of the Adelaide Plains.

- The nearby drive-in theatre and Majors Road were constructed conventionally and historically have suffered relatively large surface movements, resulting in poor ride quality and higher maintenance requirements.

- The Highways Department undertook a number of trials along the nearby Lonsdale Highway, incorporating moisture barriers along the edge of the road to try to find a cost efficient way to reduce unacceptable undulations, without much success.

- In light of these experiences, the Southern Expressway was lowered by 4m and founded near the top of the bedrock right across the top of O'Halloran Hill and not just at the Majors Road underpass in order to avoid similar problems.

- The Santos Stadium athletics track in the western parklands (former Mile End Railyards) was founded directly on similar Keswick Clay. Due to tight tolerances on the finished surface deflections, the upper 2m of clay was removed and replaced with a moisture barrier, 2m thickness of imported sand and a sub-surface drainage system.

2. Commentary on alternative methods of mitigating clay movements

It is difficult to provide any reasonable quantification of the benefits of the options below. Shrink-swell movements and hence fissuring and surface cracks are likely to manifest in some shape or form if these methods are used.

The most appropriate method for mitigating shrink-swell movements and hence fissuring and surface cracks is remove and replace the highly expansive clay, with the degree of reduction in movement and associated cracking related to the thickness of inert fill used in the replacement.

3. Soil Treatments investigated (Geotechnical responses in blue)

NOTE: All of the below should be considered as either acting alone, or in conjunction with other treatment as described.

Treatments and discussion
1. Moisture proof barrier Essentially a narrow excavated trench, with a plastic membrane installed along one side, to protect infrastructure from seasonal moisture content changes. Typically used at the edge of sealed pavements, courts or buildings otherwise known as vertical barriers. Movements are still expected away from the barrier. Deep seated movements likely at the site. Hence this will have insignificant effect.
2. Geotextile or geo-mesh reinforcing The grid would be placed at the base of structural fill or in the fill layers. Comprises a plastic mesh type to reinforce fill layers and reduce localised differential movements. Possible to assist smooth out sharp differential movements related to abnormal moisture changes (say related to poor drainage or leaking pipes), but overall global movements largely unaffected, hence insignificant effect.

3. Sub-surface drainage

The potential effect is to exacerbate soil movements by introducing moisture into the soil. This would result in reduced soil strengths or simply the drains remain dry most of the year due to no subsurface moisture expected. Increased maintenance costs and possibly costly footing reconstruction where moisture is let loose into the foundation.

The site is already designed for good surface drainage and subsurface seepage not expected. Subsurface drainage unlikely to have any benefit, and not a good idea introducing water into the subsoil. Adverse effects if not managed or blockage occurs. Impossible to quantify effects.

4. Sub-surface irrigation to keep moisture content constant

There is no reliable way to monitor moisture demand in the soil and then the same risks as Item 3

5. Grillage of trenches with agricultural drain in bottom, trenches filled with aggregate, kept wet to keep moisture content constant

There is no reliable way to monitor moisture demand in the soil and then the same risks as Item 3

6. Lime stabilisation of an appropriate depth of clay

Lime essentially breaks down the heavy clay structure and reduces the water demand, plasticity and reactivity, in turn increasing strength and reducing the shrink-swell potential.

Effective depth only about 300 mm if well blended and compacted. Minimal effect on shrink swell movements. Could replace some compacted inert fill, but cost difference no different due to the extra effort required and excavation due to the depth of clay.

7. Lime injection Unlikely to mix uniformly and laterally in a heavy fissured clay, resulting in localised benefits only. Has been used unsuccessfully on Lonsdale Highway near Majors Road. DPTI tried lime injection there and to this day the road is still subject to movement. The issue is limited lateral mixing of the lime injection results, so blocks of highly reactive clay remain.
8. Concrete capping It wouldn't be something I'd even entail, assuming this refers to a concrete slab across the site. To limit movements a capping of inert materials would still be required, otherwise the slab will move around too, particularly near the edges. Too expensive.
9. Impact rolling Impact rolling won't offer any benefit to the project. The critical item of shrink-swell movements is not addressed by compaction alone (in fact compacted clays are assessed to have a higher reactivity as they are considered to be uncracked), and impact rolling would only have marginal compaction benefit in natural clays regardless. Pad foot rolling would be expected to be conducted as part of ground preparation for the development anyway to inert material in compacted layers.
10. If the site was to be located 20m further north, with the BMX Track in the north west corner as much as possible, would the cost be reduced. This location would require fill over siltstone and transition soils, but from the borehole results, a far greater area of the site would be in transition soil (with Soil Movement Characteristic of ys<40 mm). This would then permit less Black and Keswick Clay removal, in preparation for the compacted and sealed granulated base, hence the gap in funding may be much diminished. From a geotechnical perspective less clay means less movement, and potentially less clay removal. If the track is moved 20m further north (total length of track footprint 125m approx.), means that 16% of the track would be located on marginally better subgrade. However, any minor saving would likely be lost in additional fill required as the site natural surface slopes away quite sharply further north along the site. Disregarding the subgrade issues with the site, the current location of the track footprint is at the optimal location in regards to earthworks and hence cost.

11. Exploding clay to break it up, or break it up then mix it with inert material to change chemical composition?

Would be extremely difficult to break into fine enough materials, and mixing clay lumps with inert materials never works as all that occurs is we get reactive clay lumps in a matrix of inert materials. The only efficient and practical way of blending clays with inert materials is via a pug mill or in situ stabiliser. This would imply excavation of material and additional costs of mixing. Insitu stabiliser would apply to 300mm depth of soil meaning the excavation of clays will still be required to build up the layers of compacted inert material. This would imply additional costs.

12. Integration of polymers into the soil?

I don't have much experience with polymers but would expect the same as for item 1 and effective mixing could only be achieved using a pug mill or similar. Extensive lab trials would be required to demonstrate any benefits. Polymers are expensive and the volume required and handling requirements would be expected to be cost prohibitive.